

**PATENT
K-1786**

In re Application of OJANEN)
Serial No. 09/838,348)
Filed: April 19, 2001)

RESPONSE TO FINAL OFFICE ACTION OF FEBRUARY 8, 2007

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DISCUSSION**Introduction**

Applicant hereby responds to the pending FINAL Office Action mailed February 8, 2007. Applicant submits that the claims define allowable subject matter and requests entry of the response and solicits the issuance of a Notice of Allowability and Notice of Issue Fee Due. Even if the Primary Examiner does not agree that the claims are allowable, the amendment of claims 16, 30, 34 and 38 per the Primary Examiner's suggestions places the claims in better form for appeal so that the Office should enter this paper. See 37 CFR §1.116(b)(2).

This discussion comprises two basic parts. The first part deals with the non-prior art issue. The second part concerns the prior art issues connected with the use of the drawings of the only applied reference (i.e., U.S. Patent No. 6,397,652 to Sollami) in rejections based upon 35 USC §102(e) and 35 USC §103(a).

Non-Prior Art Objection in Paragraph 1

The Primary Examiner has objected to claims 16, 30, 34 and 38 containing the term "said dimples" instead of the term "said dimple. Even though applicant submits that there is no doubt that the recitation "said dimples" refers to the previously-recited "dimple" in the claim from which it depends, applicant has amended these claims consistent with the Primary Examiner's suggestions. Applicant requests the removal of these objections since there is compliance with the Primary Examiner's suggestions. Further, these amendments place the claims in better form for appeal and provide a clear basis to enter this paper into the prosecution history. See 37 CFR §1.116(b)(2).

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Prior Art Rejections based upon the Drawings of Sollami**Paragraph 3 - Rejection under 35 USC §102(e)**

The Primary Examiner has rejected claims 15-17, 29-30, 32-34, 36-40 and 43-47 under 35 USC §102(e) "as being anticipated by Sollami (US 6397652)." This rejection appears to use essentially the same rationale as the rejection set forth in Paragraph 4 of the Office Action of June 6, 2005, which was a subject of applicant's Appeal of August 5, 2005, and Paragraph 3 of the Office Action of July 10, 2006. Applicant submits that the claims are allowable over Sollami for the reasons expressed at pages 11-13 of applicant's Appeal Brief of October 5, 2005.¹ For the convenience of the Primary Examiner, applicant encloses a copy of pages 1, 11-13 and Appeal Exhibit 4 as Attachment A.

Further, applicant submits that the Primary Examiner's measurements contain fundamental flaws, which applicant discusses below in conjunction with Paragraph 8 of the current Office Action mailed February 8, 2007. Applicant incorporates these arguments in the response to this rejection. It is clear that the protrusion of Sollami extends a significantly greater distance than the claims recite (i.e., between about 15 percent and about 30 percent of

¹ In the Appeal Brief and using Appeal Exhibit 4 as support, applicant argued that the protrusion projected in the radial outward direction a distance equal to about 88.9% of the thickness of the retainer. While applicant does not retract that argument, applicant points out that more recent measurements using an enlarged (200%) copy of FIG. 15 from the USPTO website projected from a transparency on a screen (measurements taken from the image on the screen) reveals different values for the radial outward projection of the protrusion. These values are 78% when compared against the thickness of the retainer at the location of the protrusion and 64% when compared against the thickness of the retainer at the distal edge of the retainer. Applicant points out that both of these measurements are significantly greater than the 15-30% of the claims, and thus, these measurements do not negatively impact the earlier argument against the application of Sollami. These differences point out the potential for error when using measurements from not-to-scale patent drawings. Hence, the value of these kinds of measurements in the patentability analysis is questionable. See MPEP 2125 (Rev 5 Aug 2006) at page 2100-59.

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the thickness dimension of the retainer sleeve). Thus, Sollami cannot anticipate the rejected claims, and applicant requests the removal of the rejection under 35 USC §102(e).

Rejections under 35 USC §103(a)

Introduction

The Primary Examiner wrote at page 4 of the pending Office Action that if applicant disagrees with the anticipation rejection, then the claims stand rejected under 35 USC §103(a). Applicant strongly disagrees with the anticipation rejection, and thus, applicant addresses the rejections under 35 USC §103(a).

Applicant will not repeat the details of earlier arguments about hindsight. It is clear that it is improper for the Primary Examiner to use hindsight reasoning to essentially modify Sollami by reducing the radial outward extension of the protrusions. See MPEP 2141.01 III, page 2100-118 (Rev. 5, August 2006); MPEP 2143.01, page 2100-127 (Rev. 5, August 2006); Alza Corp. v. Mylan Labs., 464 F.3d 1286 (Fed. Cir. 2006); Dystar Textilfarben GmbH v. C.H. Patrick Co., 464 F.3d 1356 (Fed. Cir. 2006). Further, applicant submits that the very recent United States Supreme Court decision in KSR International Co. v. Teleflex, Inc., 550 U.S. ___ (April 30, 2007) cannot be cited to justify the impermissible use of hindsight in the formulation of an obviousness rejection. At page 17 of the Slip Opinion in KSR, the United States Supreme Court wrote that, "[A] factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning."

Further, the decision in KSR does not support the obviousness rejection of the pending claims using Sollami. In KSR, the Supreme Court found that all of the limitations-in-question, except for one, were present in one reference. The Court then found that the missing limitation existed in a reference that the Court held was suitable to combine with the

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primary reference. Here, as admitted by the Primary Examiner², Sollami is silent about the extent of the radial outward extension of the protrusions of Sollami relative to the thickness of the retainer. There is nothing in Sollami that suggests a reduction in the extent of the radial outward extension of the protrusions relative to the thickness of the retainer of Sollami.

The primary concern of Sollami is with cold forming the tool body and not with the extraction of the tool from the bore of the holder. The text at Col. 1, lines 10-33 briefly mentions the removal and replacement of the worn tool, but makes no mention about any difficulty connected with the removal of the tool (Emphasis added by author):

Machines for cutting hard surfaces, such as concrete and asphalt, provide for a rotating wheel or drum with a plurality of cutting tools mounted around the circumference of the wheel or drum such that each tool cuts a small portion of the hard surface, thereby advancing the cut. The tools of such machines are symmetrical around a longitudinal axis and have a hardened cutting tip and a cylindrical mounting portion rotatably retained in a tool mount on the circumference of the wheel or drum such that the tool can rotate about its longitudinal axis. Rotation of the tool within the mounting member causes the tool to wear symmetrically and thereby increasing its useable life. The concrete and asphalt which is cut by such tools, however, is so abrasive that such tools nonetheless often become so worn in a single day's use that they must be replaced. The tools rarely survive two days of use.

To replace the tools of a cutting machine, the worn tool is removed from the tool holder after which a new tool is inserted therein. As many as six hundred replacement tools are required daily for a machine

² At page 4 of the Office Action, the Primary Examiner wrote that, "... Sollami is silent about the thickness ratio between the dimple and the sleeve being between 15-30%, ...".

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used to scarf the surface of a lane of pavement of highway. It is, therefore, desirable to maximize the useful life of such tools and to provide tools which are easily inserted into the holders thereof to reduce the down time required to replace the tools in the machine.

Except for the drawing, which is itself questionable to use in a rejection (see the discussion herein about Paragraph 8 of the Office Action), there is no disclosure about the extent of the radial extension of the protrusions relative to the thickness of the retainer of the structure in FIG. 15 in Sollami. This lack of disclosure is understandable because Sollami does not recognize a problem with the extraction of the tools. The silence in Sollami about the extent of the radial extension of the protrusions relative to the thickness of the retainer of the structure in FIG. 15 in Sollami is a major distinction from the references at issue in the KSR decision since all the claims limitations were present in two references. The KSR decision cannot be read so broadly as to create a missing limitation when it is absent from the applied reference(s). Applicant submits that KSR is not applicable to this situation.

Paragraph 5 - Rejection of Pending Claims

The Primary Examiner has rejected claims 15-17, 29-30, 32-34, 36-40 and 43-47 under 35 USC §103(a) over Sollami. The Primary Examiner admits that Sollami, "... is silent about the thickness ratio between the dimple and the sleeve being between 15-30%, ...". See page 4 of the pending Office Action. However, the Primary Examiner then argues that:

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Sollami to have/include the above mentioned limitations, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

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Applicant strongly disagrees with the Primary Examiner's assessment that it would have been obvious to modify the 64%-78%-88.9% projection disclosed in FIG. 15 of Sollami by decreasing the extent of the projection to between 15%-30%.

The In re Aller, 105 USPQ 233 (CCPA 1955) case concerned a chemical process claim for the production of phenol and acetone wherein the reference disclosed a similar process, except for a higher operating temperature and a lower acidity. The focus of the In re Aller decision was on a chemical process, "[N]ormally, it is to be expected that a change in temperature, or in concentration, or in both, would be an unpatentable modification." Supra at 235. The opinion went on to say that, "[A]ny chemist reading the article could logically assume that higher yields might be obtainable, and by experimentally varying the conditions of temperature and acidity could find the most productive conditions. ... The skilled chemist who chose to experiment with the reference process would undoubtedly try the conditions defined by the claims." Supra at 237.

Here, applicant submits that it is not a certain logical conclusion when looking at Sollami that one of ordinary skill in the art would take the Sollami retainer and shorten the protrusions. The focus of Sollami is on the cold forming of a tool body. The only apparent mention of a retainer with protrusions is at Col. 6, lines 48-61, which describes FIG. 15 (a tool that is prior art to Sollami). There does not appear to be any suggestion about reducing the extent of the radial outward projection of the protrusions.

As argued before, the Primary Examiner has failed to provide any evidence of any motivation whatsoever that would cause one of ordinary skill in the art at the time of the invention to modify the dimples of FIG. 15 by reducing the extension thereof a significant amount of the original length. It is only through the applicant's specification that there comes the suggestion to shorten the extension of the dimples relative to the thickness of the retainer. However, to use the specification to formulate the obviousness rejection is classic hindsight reasoning that cries out for the removal of these rejections. Applicant submits that these rejections find their basis in hindsight, and not in fact, and must be withdrawn.

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Paragraph 6 - Rejection of Pending Claims

The Primary Examiner has rejected claims 15-17, 29-30, 32-34, 36-40 and 43-47 under 35 USC §103(a) over Sollami. The Primary Examiner admits that Sollami, "... is silent about the thickness ratio between the dimple and the sleeve being between 15-30%, ...". See page 4 of the pending Office Action. However, the Primary Examiner then argues that:

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Sollami to have/include the above mentioned limitations, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

This rejection is along the lines of the above rejection of Paragraph 5 so that similar arguments apply. More specifically, in the *In re Boesch* decision, the claims were directed to a Co-Cr-Ni with an N_v value below a specific limit to unexpectedly avoid the formation of an embrittling phase (i.e., sigma phase). At 205 USPQ 219, the CCPA wrote:

In the above-quoted passage from '838, we note that lowering the N_v value of Co-Cr-Ni alloy and deletion of the metals not consumed in precipitation from the N_v calculation are expressly suggested. Considering, also, that the composition requirements of the claims and the cited references overlap, we agree with the Solicitor that the prior art would have suggested "the kind of experimentation necessary to achieve the claimed composition, including the proportional balancing described by appellant's N_v equation." This accords with the rule that discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. [citations omitted].

Here, there are no references along the lines of those in the *In re Boesch* case. In this case, there is no suggestion in Sollami to reduce the radial outward projection of the dimples from

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the surface of the retainer to fall within the 15-30% range. Assuming that a measurement of the drawing even has value, Sollami does not disclose a range that overlaps the claimed range of 15-30%. Thus, the key factors cited by the CCPA in In re Boesch to support its conclusion that the prior art would have suggested experimentation to arrive at an optimum value of a result effective variable are absent in this case. Applicant submits that the rationale of In re Boesch cannot support the present obviousness rejection, and solicits the removal of this rejection.

Paragraph 7 - Rejection of Pending Claims

The Primary Examiner has rejected claims 15-17, 29-30, 32-34, 36-40 and 43-47 under 35 USC §103(a) over Sollami. The Primary Examiner admits that Sollami, "... is silent about the thickness ratio between the dimple and the sleeve being between 15-30%, ...". See page 4 of the pending Office Action. However, the Primary Examiner then argues that:

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Sollami to have/include the above mentioned limitations, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

Applicant disagrees that the present invention is a "mere change in size" over Sollami, especially in the context of In re Rose, 105 USPQ 237 (CCPA 1955).

In regard to the In re Rose case, the claims pertain to a lumber package comprising a number of bundles of banded lumber arranged in a certain fashion. In trying to distinguish over two of the references that disclosed packages that could be lifted by hand, the appellant argued that the claim was to a lumber package of such size that a lift truck was necessary to handle the package. The CCPA wrote that, "[W]e do not feel that this limitation

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is patentably significant since it at most relates to the size of the article under consideration which is not ordinarily a matter of invention.” Supra at 240. In In re Rose, it is apparent that the difference in the size of the claimed package and the reference provided no benefit or had no impact other than in the size. However, here, the difference between the claimed invention and Sollami regarding the radial outward projection of the dimples from the surface of the retainer has an impact on the function of the retainer.³ Here, there is more than a mere change in size in the context of the In re Rose decision so that the rationale of In re Rose does not apply to this situation. Applicant solicits the withdrawal of the rejection.

Comments on Paragraph 8 of the Office Action

At page 6 of the Office Action, the Primary Examiner’s response to applicant’s earlier arguments use the measurement of the structure illustrated in FIG. 15 of Sollami ‘652 as follows:

8. Applicant’s arguments filed in appeal brief (filed 10/07/05) have been fully considered but they are not persuasive. Applicant argues that the dimple thickness is about 88.9% the thickness of the sleeve. The examiner disagrees. As pointed out in the attached marked up Figure 15, member (41) is defined at col. 6 line 55 as being .1875 inches and it was determined by measurement that the dimple thickness is about .0375 and the sleeve thickness is about .125 inches thus meeting the limitation about 15-30%.

Applicant submits that the measurement of a drawing like FIG. 15 is of little value for two basic reasons.

³ Applicant refers the Primary Examiner to the discussion found at pages 13-16 of the Response to Non-Final Office Action of July 26, 2004 mailed on November 8, 2004 in this prosecution. This discussion points out the importance of the limits to the range of 15%-30% wherein these limits are performance-oriented.

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First, a careful review reveals that FIG. 15 illustrates the retainer body in cross-section and the protrusion is not in cross-section⁴ (see Attachment B, which is an enlarged version of FIG. 15). Basic drafting principles establish that the protrusion of FIG. 15 must be rotated away from the section line. What this means is that the extent of the radial outward projection of protrusion is actually greater than what FIG. 15 shows. Since there is no description as to the extent of the rotation, there is no way to accurately determine the extent of the radial outward projection. This is a fundamental flaw in the Primary Examiner's use of FIG. 15 from Sollami.⁵

Second, a careful look at an enlarged version of FIG. 15 (see Attachment B) shows that the retainer sleeve (38'') is somewhat arcuate and is of a generally constant thickness. The fact that retainer sleeve 38'' is of a generally constant thickness is consistent with the illustrations of sleeves 38 and 38' in FIGS. 3 and 3A, as well as the broken lines of each surface of the retainer shows that retainer sleeve 38'' is of a generally consistent thickness. An enlarged view (Attachment B) of the rear portion of the tool (10'') of FIG. 15 establishes that the thickness is generally consistent.

As shown by the enlargement of the Primary Examiner's marked-up copy of FIG. 15 (an enlargement is Attachment D), the Primary Examiner takes a measurement such that the thickness of the retainer (dimension "b" in the attachment to the Office Action) is equal to the depth of the groove (33).⁶ This is inconsistent with the drawing that shows

⁴ FIG. 5 of U.S. Patent No. 4,484,783 to Emmerich (of record in this case) shows both the retainer body and dimple in cross-section. See Attachment C hereto.

⁵ Since the protrusion of FIG. 15 is rotated away from the section line, the extent of the radial outward projection of protrusion is actually greater than what is shown in FIG. 15, and hence, more strongly supports applicant's argument that Sollami cannot address the pending claims.

⁶ If a retainer has a thickness equal to the depth of the groove, the retainer would not have the ability to retract and then expand wherein the protrusion engages the interior channel in the bore of the holder.

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broken lines as representing the surface of the retainer. To the extent that a measurement of the thickness of the retainer is proper, a measurement of the thickness dimension "b" should be taken to correspond to the thickness of the retainer as shown by the broken lines.

Assuming that the measurement of the drawing carries weight, applicant respectfully submits that the Primary Examiner's position regarding FIG. 15 lacks merit because it is based on an inaccurate construction of the drawing of Sollami,

Conclusion

In conclusion, the rejections rely heavily on the measurement of FIG. 15 of Sollami by the Primary Examiner of the extent the protrusion extends in a radial outward direction from the retainer surface relative to the thickness of the retainer. Applicant respectfully submits that this measurement of FIG. 15 of Sollami has fundamental flaws, and that these flaws render the rejections without merit. Even if the measurement has merit, the extent of the radial outward projection of the protrusion of Sollami is so much greater than the claimed range of 15-30% that Sollami cannot anticipate or render obvious the claims.

Applicant submits that the claims define allowable subject matter, and hence, requests the issuance of a Notice of Allowability and Notice of Issue Fee Due. Should the Primary Examiner have any questions or a suggestion to place the claims in form for

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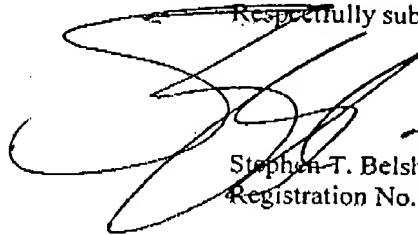
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allowance, applicant urges the Primary Examiner to telephone the undersigned attorney or Mr. Matthew Smith, Esq. at Kennametal Inc. (724-539-3848) with such questions or suggestions.

Respectfully submitted,



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Date: May 21, 2007

ATTACHMENT A

Copy of pages 1, 11-13 and Appeal Exhibit 4 from the APPEAL BRIEF

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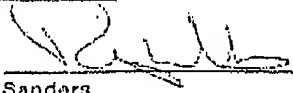
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BOARD OF PATENT APPEALS AND INTERFERENCES

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Serial No. 09/838,348) Group Art Unit 3673
Filed: April 19, 2001)
For: ROTATABLE CUTTING TOOL) Examiner: Singh, Sunil
HAVING RETAINER WITH DIMPLES)

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Date: October 5, 2005Signature: Rhonda L. Sanders

Type or Print Name of Person Certifying

October 5, 2005

Sir: APPEAL BRIEF UNDER 37 CFR §41.37INTRODUCTION

This Appeal Brief is being filed within two (2) months of the filing of the Notice of Appeal on August 5, 2005. The appropriate fee accompanies this paper per the accompanying TRANSMITTAL OF APPEAL BRIEF.

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Since this is not a chemical application, the lack of specific working examples is not a detriment to the enablement issue.

The content of the disclosure is sufficient so that very little experimentation, and most likely no experimentation, would be necessary to achieve the invention as claimed.

Conclusion

A review of all the above-cited factors as set forth in the Manual of Patent Examining Procedure show that there is no evidence that establishes, or even tends to establish, that the claims fail to satisfy the enablement requirement. After considering the evidence as a whole, it is clear that the Examiner cannot carry his burden to establish a lack of enablement, and in fact, the above discussion shows that the claims satisfy the enablement requirement.

Appellant solicits the reversal of this rejection with a remand back to the Examiner for the removal of this rejection.

The Rejection of the Claims 35 USC §102(e)

The Examiner's Position

The Examiner has rejected claims 15-17, 29-30, 32-40 and 43-47 under 35 USC §102(e) as being anticipated by the '652 Sollami patent. In short, the Examiner stated that all of the limitations of the claims exist in the '652 Sollami Patent.

Appellant's Position

The upshot of appellant's argument is that the claims call for dimples that do not protrude to the same extent as do the prior art dimples. To best appreciate the strength of appellant's argument, one must appreciate that the extent of the protrusion is a meaningful feature of the invention that provides a meaningful advantage.

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In this regard, in contrasting the present dimples against retainers that have larger projections (e.g., see U.S. Patent No. 4,484,783 to Emmerich and U.S. Patent No. 3,519,309 to Engle et al.), the present patent application recognizes that the prior art tools with the larger dimples often become difficult to remove because dirt and debris penetrate the clearances between the shank, the retainer and the bit holder bore and accumulate in the shank annular groove. At page 11, lines 10-13, the present patent application reads:

"This debris and dirt interferes with the inward radial play of the radially protruding surfaces, making the tools very difficult and sometimes impossible to remove."

In light of the larger size of the protrusions in the retainers of the '783 Patent and the '309 Patent, a significant amount of inward radial play is necessary to retract the protrusions so as to be able to remove the retainer.

If dirt and debris penetrates the volume between the retainer and the groove in the shank of the tool so the retainer is unable to contract in the radial inward direction a sufficient distance, the tools cannot be removed without shearing off the protrusions. This is contrast to the present invention that, "... includes protruding dimples that are designed to require no radial play and, therefore, do not suffer from the same drawback as the prior art." The reason that the dimples of the present invention do not require inward radial play to be removed is because they extend a smaller distance away from the surface of the retainer. This is a meaningful advantage over the prior art that includes tools with a retainer with the larger protrusions or dimples.

In addressing the numerical range as set forth in the claims, the Examiner used the '652 Sollami Patent and wrote, "... the amount of radial projection of said protruding surface beyond the cylindrical surface of the retainer is between about 15 percent and about 30 percent of the thickness dimension of said retainer (see Fig. 15)." See page 4 of the FINAL Office Action of June 6, 2005. Attached hereto as Appeal Exhibit 4 (i.e., Exhibit H attached to the Response to the Non-Final Office of February 1, 2005) is an enlarged copy of

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the tool illustrated in Fig. 15 of the '652 Sollami Patent. Measurement of the thickness of the retainer ("THICKNESS" in Exhibit H) in comparison to the distance of the radial projection ("RADIAL PROJECTION" in Exhibit H) establishes that the radial projection is about 88.9 percent (RADIAL PROJECTION/ THICKNESS) of the thickness of the retainer.

There are two basic claim recitations. The first recites that:

... the amount of radial projection of said dimple beyond the cylindrical surface of the retainer is between a minimum equal to about 15 percent of the thickness dimension of the retainer so as to provide sufficient holding force to rotatably retain the cutting tool within the bore during operation and a maximum equal to about 30 percent of the thickness dimension of said retainer so as to provide for a maximum force to allow the removal of the cutting tool from the bore without the necessity of excessive force.

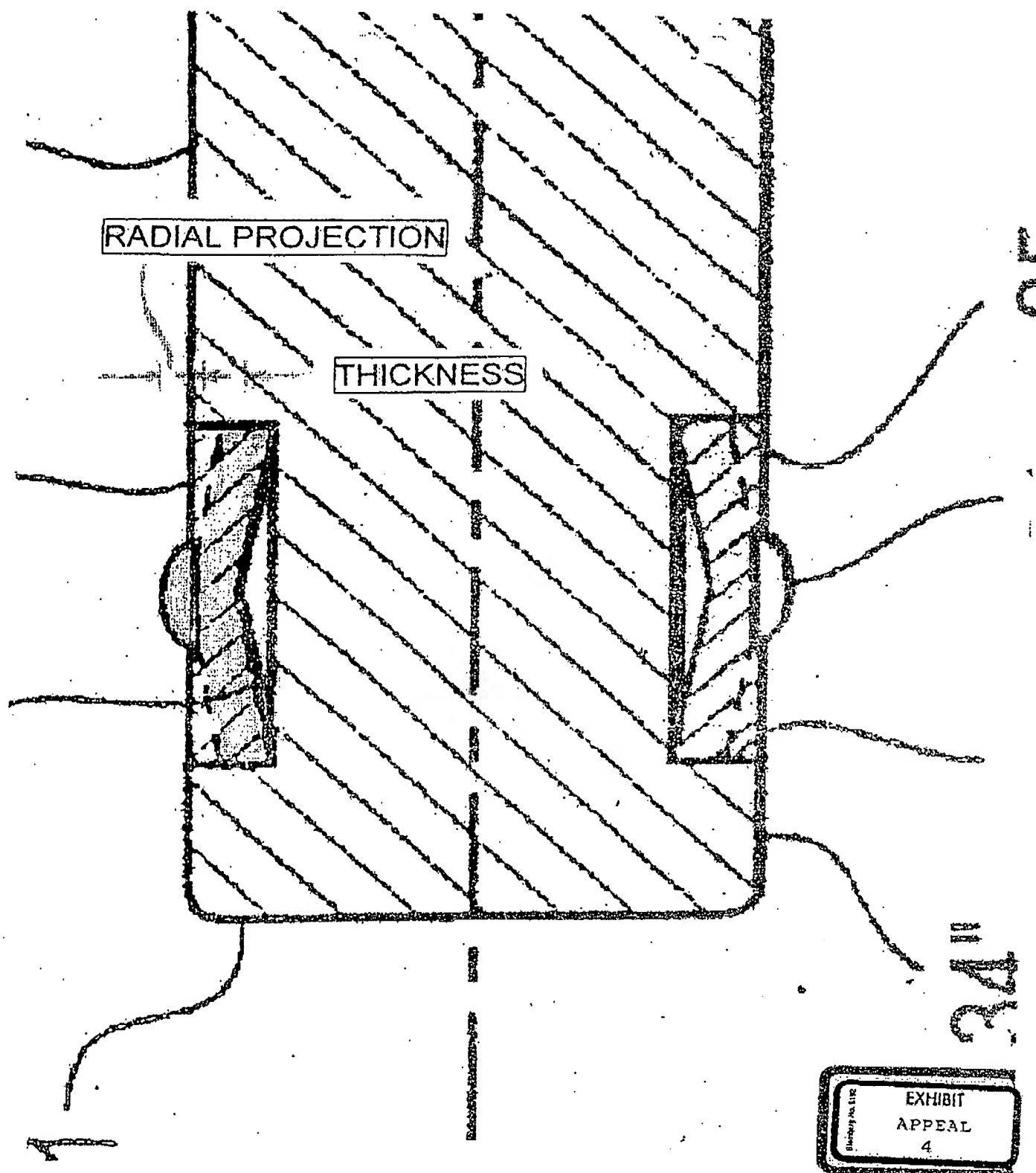
The second recites that:

... the amount of radial projection of said dimple [or protruding surface] beyond the cylindrical surface of the retainer is between about 15 percent and about 30 percent of the thickness dimension of said retainer.

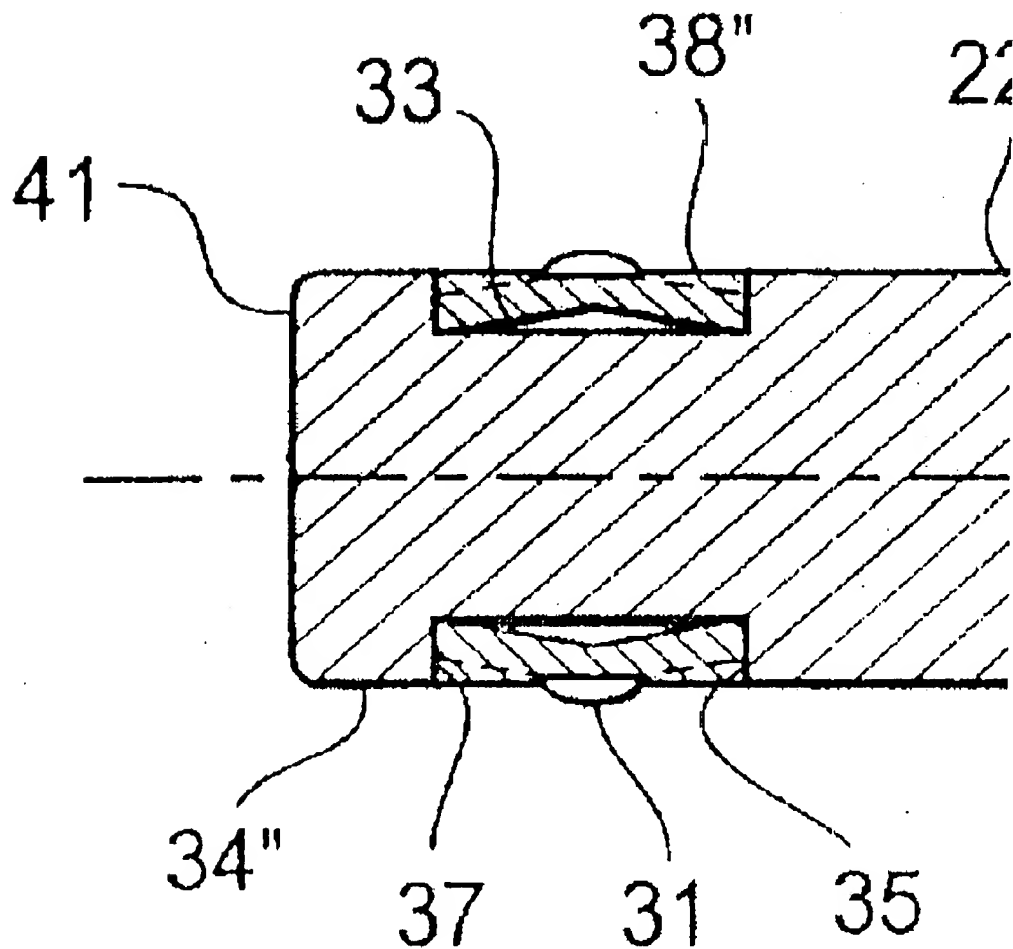
In light of this measurement of the radial projection equaling about 88.9 percent, appellant submits that the '652 Sollami patent cannot anticipate the claims under 35 USC §102(e) wherein the claims call for a lesser degree of projection.

Conclusion

Appellant submits that claims 15-17, 29-30, 32-40 and 43-47 are patentable over the '652 Sollami patent. Appellant solicits the reversal of this rejection and a remand to the patent examiner with instructions to allow the claims.



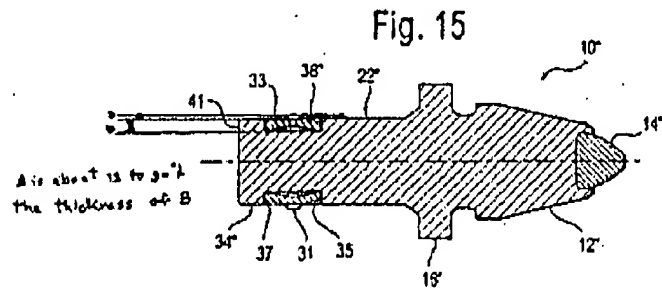
ATTACHMENT B



Enlargement of FIG. 15 of US Patent No. 6,397,652

ATTACHMENT D

Reproduction of the Examiner's Measurements



Enlargement of the Examiner's Measurements

